

PATENT

Serial No. 10/524,407

Amendment in Reply to Final Office Action mailed on September 21, 2006

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optical disk drive, comprising:

a housing ~~(1)~~;

a drive motor ~~(2)~~ and a drive shaft ~~(3)~~ mounted within the housing and adapted to engage ~~the~~ and rotate a disk; ~~(D)~~ for rotating it,

an optical pick-up unit ~~(5)~~, including a fixed part ~~(7)~~ comprising at least a light source, and a movable part ~~(8)~~ with sliding mounted possibility on a guide ~~(9)~~ and comprising at least a mirror ~~(13)~~, a focusing lens ~~(14)~~, and lens-moving elements, said movable part being moveable along a guide and adapted to move a focused beam along the disk ~~(D)~~ ;

a PCB ~~(17)~~ printed circuit board having a signal connection to the lens-moving elements on the movable part (8) of the pick-up

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~~unit through flexible wires (20),~~

~~the same PCB (17) serves as a for mounting base for the fixed part (7) of the optical pick-up unit (5), the guide (9), and the drive motor (2), and~~

~~and wherein the PCB is contained within the housing a wire flex connected between the printed circuit board and the movable part, the wire flex being bent about one bending axis only, said bending axis being substantially parallel to the drive shaft.~~

2. (Currently Amended) The optical disk drive as claimed in claim 1, wherein the ~~PCB (17)~~ printed circuit board accommodates electronic components ~~(18)~~ which are mounted to the ~~PCB (17)~~ printed circuit board on a side thereof facing an adjacent housing wall.

3. (Currently Amended) The optical disk drive as claimed in claim 1, ~~wherein the optical disk drive includes a further~~ comprising heat conducting mounting means in addition to the PCB ~~and, wherein the PCB (17) printed circuit board is mounted to the~~ housing through the heat-conducting mounting means.

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4. (Currently Amended) An optical disk drive, comprising:

a housing ~~(1)~~;

a drive motor ~~(2)~~ and a drive shaft ~~(3)~~ mounted within the housing and adapted to engage ~~the~~ a disk (D) for rotating it,

an optical pick-up unit ~~(5)~~, including a fixed part ~~(7)~~ comprising at least a light source, and a movable part ~~(8)~~ with ~~sliding~~ slideably ~~mounted possibility~~ on a guide ~~(9)~~ and comprising at least a mirror ~~(13)~~, a focusing lens ~~(14)~~, and lens-moving elements, said movable part being adapted to move a focused beam along the disk ~~(D)~~, and

a ~~PCB (17)~~ printed circuit board having a signal connection to the lens-moving elements on the movable part ~~(8)~~ of the pick-up unit through flexible wires ~~(20)~~,

~~and wherein the same PCB (17)~~ printed circuit board serves as a mounting base for the fixed part ~~(7)~~ of the optical pick-up unit ~~(5)~~, the guide ~~(9)~~, and the drive motor ~~(2)~~

and wherein the flexible wires are contained within a wire flex ~~(20)~~ which is bent about one bending axis only, said bending axis being substantially parallel to the drive shaft (3) of the

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drive motor ~~(2)~~, the wire flex bending about the bending axis during operation.

5. (Currently Amended) The optical disk drive as claimed in claim 1, wherein the ~~linear guide (9)~~ for the movable part ~~(8)~~ of the optical pick-up unit ~~(5)~~ is mounted directly on the ~~PCB (17)~~ printed circuit board.

6. (Currently Amended) The optical disk drive as claimed in claim 1, wherein the housing ~~(1)~~ is made of metal.

7. (Currently Amended) The optical disk drive as claimed in claim 1, wherein the movable part ~~(8)~~ of the pick-up unit ~~(5)~~ comprises an actuator having driving coils for ~~the a~~ focusing lens of the movable part, said driving coils being connected to the ~~PCB~~ printed circuit board through said ~~flexible wires (2)~~ wire flex.

8. (Currently Amended) A method of assembling an optical disk drive, comprising the ~~steps~~ acts of:

providing a housing ~~(1)~~, a drive motor ~~(2)~~, and a drive shaft

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~~(3)~~ to be mounted within the housing and adapted to engage ~~the a~~  
disk ~~(4)~~ for rotating ~~it~~ the disk, an optical pick-up unit ~~(5)~~,  
comprising a light source, and a movable part including at least a  
mirror ~~(13)~~ and a focusing lens ~~(14)~~ to create a focused beam, a  
guide ~~(9)~~ for moving the focused beam along the disk, and a PCB  
~~(17)~~ printed circuit board having main electrical components ~~(18)~~  
and being connected to the guide ~~(9)~~ through flexible wires ~~(20)~~,  
~~characterized in that~~

first mounting the main electrical components (18) are mounted  
on one side of the PCB ~~(17)~~ printed circuit board, and then

mounting the guide (9), the pick-up unit (5), and the drive  
motor ~~(2)~~ are mounted on the another side of the printed circuit  
board which is opposite the one side of the PCB (17), and

mounting a wire flex between the printed circuit board and the  
movable part, the wire flex being bent about one bending axis only,  
said bending axis being substantially parallel to the drive shaft.

9. (Currently Amended) The method as claimed in claim 8,  
wherein further comprising the act of soldering the parts (2, 5, 9)  
drive motor, the pick-up unit, the guide and the main electrical

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~~components (18) are fixed to the PCB (17) printed circuit board in one soldering step.~~

10. (Currently Amended) The optical disk drive of claim 3, wherein the heat-conducting mounting means ~~is~~ includes a heat-conducting mat.

11. (Currently Amended) The optical disk drive as claimed in claim 1, ~~wherein the optical disk drive includes a further comprising heat conducting mounting means in addition to the PCB and the heat conducting means that extends between the PCB (17) printed circuit board and the adjacent wall of the housing.~~

12. (Currently Amended) The optical disk drive as claimed in claim 1, wherein the fixed part of the optical pick-up unit, the guide, and the drive motor are directly mounted on the PCB printed circuit board by soldering.

13. (Currently Amended) ~~The optical disk drive as claimed in method of claim 8, wherein the~~ a fixed part of the optical pick-up

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unit, the guide, and the drive motor are directly mounted on the  
PCB-printed circuit board by the soldering act.

14.(New) The method of claim 8, further comprising the act of providing a heat conductor between the printed circuit board and the housing.

15.(New) The method of claim 8, further comprising the act of mounting the printed circuit board to the housing through a heat conductor.

16.(New) The method of claim 8, wherein the housing is made of metal.